

**PHYSICAL MEDICINE AND REHABILITATION****PAPER-I**Time: 3 hours  
Max. Marks:100

PMR/J/20/35/I

**Important Instructions:**

- Attempt all questions in order.
- Each question carries 10 marks.
- Read the question carefully and answer to the point neatly and legibly.
- Do not leave any blank pages between two answers.
- Indicate the question number correctly for the answer in the margin space.
- Answer all the parts of a single question together.
- Start the answer to a question on a fresh page or leave adequate space between two answers.
- Draw table/diagrams/flowcharts wherever appropriate.

**Write short notes on:**

1. What are the objectives and principles of therapeutic exercises? Mention the differences between isometric, isotonic and eccentric types of muscular contractions. 5+5
2. Describe neuroanatomy of bladder. What is detrusor sphincter dyssynergia? Briefly mention its management. 5+1+4
3. a) Brain stem Auditory Evoked Response (BAER) test. 5+5  
b) Motor unit action potential.
4. What is scapulohumeral complex? Describe the mechanics of muscles participating in each movement at the scapulohumeral complex. 5+5
5. What types of controls are available for manipulation of motorized wheelchair, give indications of each type of control? 10
6. Physiology and assessment of balance in human. 5+5
7. a) Describe oxygen dissociation curve with the help of a neat and labelled diagram. 5+5  
b) Describe the factors affecting oxygen dissociation curve.
8. a) Describe the nerve supply of foot with a labelled diagram. 4+3+3  
b) How can you differentiate between radiculopathy and peripheral neuropathy in a patient with sensory deficit of foot region?  
c) Describe muscles of second layer of sole.
9. Describe speech areas of brain. Enumerate various types of presentations of speech disorders due to brain injury based on these areas. 5+5
10. Describe the Gate control theory of pain and its applied perspectives in management of pain. 10

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